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A CASE OF TRAUMATIC VARIX OF THE ORBIT IN WHICH LIGATION OF THE LEFT COMMON CAROTID ARTERY WAS SUCCESSFULLY PERFORMED.[1]

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On July 9, 1894, T. T., a twenty-seven-year-old brakeman, came to my clinic at Wills Eye Hospital with the history that five days previously his left eye had been either kicked or struck with a fist. For two days after the injury he did not notice anything peculiar, but on the third day the eyelids became much swollen; and on the fourth day the eyeball became prominent. This was followed by a "constant buzzing, with some pain," which the patient referred chiefly to the left temporal and auditory regions.

The man was in a highly nervous state, with marked tremor, especially of the extremities, he having just passed through a subacute attack of alcoholism of nearly three weeks' standing.

Examination of the affected eye and its surrounding parts showed that the upper lid was so much swollen and œdematous that it fell over in front of the eyeball. There was an intense chemosis of the ocular conjunctiva, which was so pronounced in its inferior half as to allow a broad fold of the membrane to project through the palpebral fissure and rest upon the skin of the lower lid. The globe itself, which, with the exception of a slight wheel-like motion down and in, was immobile, could be rotated a few degrees in different directions by forced palpation. The organ was proptosed directly forward. Its cornea was clear. The pupil was three millimetres in diameter. There was absolutely no movement of the iris to any form of direct or consensual impulse. Intraocular tension was normal, and there was not any ciliary tenderness.

Vision was reduced to one-eighth of normal, this being in a measure accounted for by a history of convergent strabismus which had existed since infancy, the sight of the left eye always having been defective.

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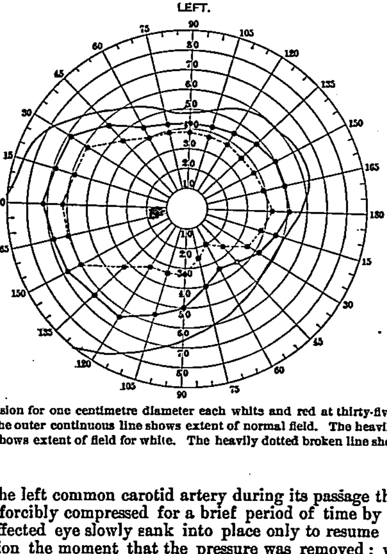
[1] Read before the December, 1899, meeting of the Section on Ophthalmology of the College of Physicians of Philadelphia.

The patient stated that when he was four years of age he was caught between two railroad cars, inflicting such an injury to his head that he bled from the mouth, the nose, and the ears.

The fields of vision for white and red of the affected eye, as shown in Fig. 1, exhibited decided indentations in the lower inner quadrants, with a slight enlargement of the physiological blind spot.

Ophthalmoscopic examination showed that the retinal veins were enlarged and tortuous, while the contained venous currents were so dark in places as to appear almost black. No hemorrhage of any kind could be determined. A marked bruit in the temporal region, which was synchronous with the radial pulse, could be plainly recognized by direct auscultation. No orbital bruit or pulsation could be either heard or felt.

FIG. 1.



Fields of vision for one centimetre diameter each white and red at thirty-five centimetres distance. (The outer continuous line shows extent of normal field. The heavily dotted continuous line shows extent of field for white. The heavily dotted broken line shows extent of field for red.)

When the left common carotid artery during its passage through the neck was forcibly compressed for a brief period of time by the finger-tips, the affected eye slowly sank into place only to resume its former false position the moment that the pressure was removed; while some of the palpebral and conjunctival stasis subsided.

The right eye was healthy and normal in all respects.

For the purposes of further study I immediately admitted the man into the wards of the hospital. In two days' time both the palpebral and the conjunctival chemosis had become greater and the proptosis had become more marked. Constant digital and mechanical compression upon the left common carotid artery was then decided upon and faithfully, though uselessly, persisted in for a period of eleven days, the external conditions becoming much worse and the bruit so intense as to be rendered almost unbearable to the patient. Ophthalmoscopic examination at this time showed that the retinal veins of the affected organ were much more swollen than they were when the patient was admitted into the hospital.

At this juncture, as I was about to leave the city for my summer vacation, I left the case in charge of Dr. George C. Harlan, one of my colleagues at the hospital, we agreeing that a radical operation for the relief of the condition should be tried at once.

Just before his dismissal from the hospital to go to the surgical wards of the Pennsylvania Hospital, to which institution he was sent by Dr. Harlan, he complained of pain in the left ear and upper jaw, both of which had become markedly swollen. The cornea of the affected eye was becoming hazy in its deeper layers, allowing but a dim view of the fundus. The retinal veins were enormously dilated and tortuous, while the retina itself was quite opaque in places.

On August 3d the left common carotid artery was tied by Dr. Thomas S. K. Morton, of this city.

Under ether-narcosis an incision was made in the line of the sternomastoid muscle on the left side of the patient's neck, and the common carotid artery was exposed at the point of election above its crossing by the omohyoid muscle Pressure upon the elevated vessel at this point entirely controlled the bruit and pulsation. The vessel was tied by a treble ligature after the manner suggested by Ballance and Edmunds. This ligature consisted of three large strands of twisted silk being passed about the vessel. Each strand was tied tightly down by one knot, after which all six of the ends were tied in a second knot, thus cutting off and bringing into apposition almost a quarter of an inch of the coats of the vessel. The wound was closed by a continuous silk thread. No drainage was employed.

Not the slightest symptom of so large an artery having been ligated followed the procedure, there being an entire cessation of the pulsation and the bruit. The eye immediately settled back into the orbit, and nothing remained to denote the former condition save a pouch of conjunctiva which projected from the lower lid.

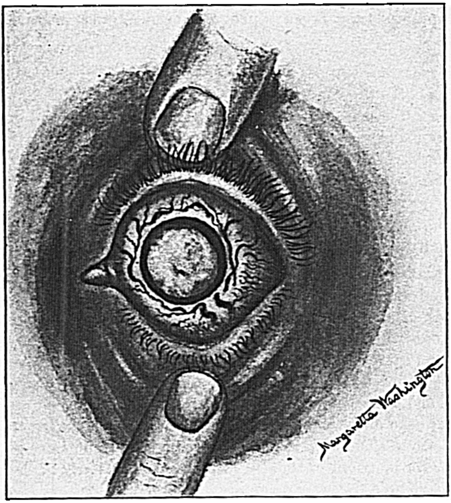
Five hours after the operation Dr. William C. Posey, my assistant at Wills Eye Hospital, kindly saw the case for me. Both the bruit and the exophthalmos had greatly diminished. The eye-ground could be more distinctly seen, the retinal veins not being so distended as they were before the operation. Uncorrected vision equalled one-tenth of normal.

Six days later the exophthalmos had much lessened and the palpebral œdema and the conjunctival chemosis had greatly subsided, allowing the patient to elevate the upper lid and to have some control over the movements of the eyeball. The retinal veins were not swollen. For the first time a few points of retinal extravasation in direct association with the veins could be determined. Vision was the same as when the patient was seen before.

On January 27, 1896, some five months after the operation for ligation, he returned to the hospital with the statement that the eye had gradually become blind, and that it took several weeks' time for the swelling of the lids and conjunctiva to disappear.

At this time it was found that the eyeball was convergent, and as can be seen in Fig. 2, which is reproduced from a water-color sketch made for me by Miss Margaretta Washington, of this city, the scleral veins were enlarged, the cornea was clear, the pupil was widely dilated, the anterior chamber was shallow with almost total obliteration of its angle, and the lens was cataractous. Intraocular tension was increased, and the eye was absolutely blind. There was no ciliary tenderness. In other words, the condition of an absolute secondary glaucoma was present. The fellow eye continued normal.

FIG. 2.



External appearances of condition of absolute secondary glaucoma.

REMARKS. The head-crush at four years of age most probably was the beginning of either an aneurismal varix situated between the petrous and the cavernous portions of the internal carotid artery and the corresponding cavernous sinus, or a varicose aneurism in which there was an intervening sac or so-called false aneurismal connection located between the two vascular channels. In either case in a well-protected situation and the connected veins subject to but little arterial pressure, it—as in all such forms of vascular disturbance—was of very slow growth and may have even terminated its extending process.

The more recent blow upon the diseased region in a debilitated subject—given to alcoholic excesses, most probably—increased the opening into the venous structures so as to give as its most prominent ophthalmic sign an orbital varix.

The cessation of the gross venous stasis of the related vascular structures of the orbit, and the eyeball and its appendages, by ligation of the main trunk supplying blood to the parts, is of interest both in regard to therapy and etiology. The appearance of the signs of absolute secondary glaucoma as the final outcome of the condition of the ocular tissues may be in a measure understood when it is considered that the eyeball is a lymph-producing organ which is dependent upon normal blood-supply.

THE EHRLICH DIAZO REACTION.

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In a preliminary report of the commission appointed by Surgeon-General Sternberg to investigate typhoid fever during the late war, Vaughan states that the chief difficulty with which the commission had to contend was the utter worthlessness in numerous instances of the diagnoses of the volunteer physicians. As a result of inability and lack of opportunity to make blood examinations for plasmodia malaria and Widal's test for typhoid fever, thousands of cases of typhoid fever were diagnosed malaria, typho-malaria, continued fever, dengue, indigestion, and diarrhœa, and treated as such.

It may seem an extravagant statement, but it is none the less true, that if the diazo test had been applied in a routine way, and alone depended upon for the diagnosis of typhoid fever, the vast majority of these cases would have been correctly diagnosed.

Before recording my observations and deductions in detail, I will give a short résumé of the history and the chemistry of the diazo reaction.

In 1860, Peter Griess discovered and produced the azo dyes. He early made use of sulphanilic acid and naphthylamin salts for the demonstration of nitrous acid and its salts by means of color reactions. In 1875 the chemist Weselsky demonstrated phloroglucin by combining it with nitrodiazobenzol, the product being a red dye. Ehrlich believed that in the urine of certain diseases aromatic bodies were excreted which would become diazotized under proper chemical treatment. With this idea in mind, in 1882 he experimented upon the urines of a